

UNIVERSITY OF ALBERTA

Page 2

Bolstering new research

Petro-Canada Young Innovator Award winners announced

Page 3

Time traveller

Students' Union teaching award winner's classes are an adventure unto their own

Diving dinos

Researcher theorizes that dinosaurs may have enjoyed a swim now and again

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U of A talent a strong theme in literary award nominations

Michael Brown

ix University of Albertaaffiliated authors have been nominated for the Writers Guild of Alberta's 2013 Alberta Literary Awards.

Brian Evans, professor emeritus in the Department of History and Classics and expert in Canada-China relations, is up for the Wilfrid Eggleston Award for Nonfiction for Pursuing China: Memoir of a Beaver Liaison Officer (U of A Press).

Pursuing China, which was launched to commemorate the Department of East Asian Studies' 30th anniversary, blends memoir and history to draw a vivid picture of China and its cultural outreach over the past three decades. Evans comments on everything from the Cold War and China's Cultural Revolution to Canada's relations with China, the cultural impact of the overseas Chinese community on the Canadian Prairies and the current impact of China on Canadian higher education.

Jenna Butler, alumna and creative writing instructor with the Faculty of Extension, is nominated for the Stephan G. Stephansson Award for Poetry for her book of poetry, Wells (U of A Press).

Wells draws on Butler's own experiences of her grandmother's disappearance into senile dementia to reassemble a sensual world in long-poem form.

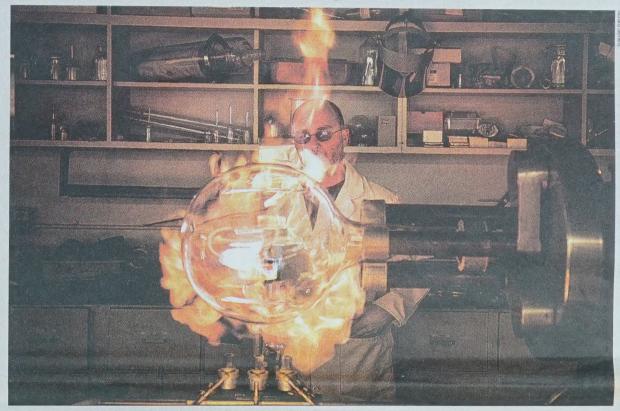
We work with talented authors every day and it is especially joyful for us when they are recognized for their contributions," says Linda Cameron, director of the U of

Sydney Budgeon and Selestia Herrera, both fourth-year arts students, were nominated for the Amber Bowerman Memorial Travel Writing Award for pieces they wrote while attending Ted Bishop's WRITE 498 course in Cortona, Italy, last semester.

Budgeon is up for the award thanks to "The Unfinished,"

Continued on page 2

Fire and glass



Jason Dibbs at work in his glass-blowing shop. See Staff Spotlight on page

Campus community exchanges ideas over lunch

Bryan Alary

ne of the University of Alberta's greatest strengths is the academy's commitment to excellence in providing comprehensive learning and research opportunities across all disciplines.

That was a top conversation thread during a lunchtime brown bag forum on April 5 that was set up to help inform the U of A's response to draft letters of expectation from the provincial government. The letters, released shortly after the budget and a 6.8 per cent cut to post-secondary grant funding, call on institutions to identify their top three strengths and the role they could play in the future direction of Campus Alberta.

Martin Ferguson-Pell, acting provost and vice-president academic, said senior administration has found it challenging to limit the



Martin Ferguson-Pell

university to only three strengthsa point on which several in the audience agreed.

Ryan Dunch, chair of the Department of East Asian Studies, said that asking all 26 post-secondary institutions to put forward their top three strengths "puts things on par that are really not on par" given size and program disparities.

'The strength of the University of Alberta is precisely our scope and the role we play as the flagship in an integrated system," Dunch said. "It would be a mistake to focus on a particular discipline or research areas in designating three strengths. We should look at the three strengths in the context of the role of the U of A as a provincial institution in Campus Alberta."

Jenny Welchman, chair of the Department of Philosophy, said the value of Campus Alberta is a direct function of the value of its individual institutions, particularly a flagship like the U of A, Calgary and others

'You don't even sell people on going to a mall unless you've got

Continued on page 2





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Chemist, engineer land Petro-Canada Young **Innovator Awards**

Sandy Robertson & Nicole Basaraba

The University of Alberta has recognized two of its young research stars with an award meant to bolster work that has the potential to be of great significance to the world.

Hongbo Zeng, professor in the Department of Chemical and Materials Engineering, and Michael Serpe, professor in the Department of Chemistry, have both been awarded the Petro-Canada Young Innovator Award.

Established at the U of A in 1999 by an endowment from Petro-Canada, the award is designed to recognize and help support the work of outstanding young researchers in the faculties of business, engineering and science.

Serpe, also a Grand Challenges Canada Rising Stars in Global Health grant recipient, says he's set on solving the world's problems through his groundbreaking work on polymers.

"I like to think about universal problems, and I believe the breakthroughs we've made in refining the delicate chemical composition of our polymers is allowing us to address so many problems using low-cost sensors—this is a gamechanger," he says. Serpe, who describes his hard-working polymers as a bit like the bubbles in a bubble tea-except at a micro or nano scale—adds, "These polymers can recognize and interact with specific compounds in the body and in the environment, so they can absorb things like heavy metals or organic contaminants in water, or cause devices made from our polymers to change colour in the company of bacteria or other toxins.

With the innovations coming out of Serpe's lab at the U of A, it comes as no surprise he brings some unusual perspectives to his work. The native of New Port Richey, Florida, says he was heavily influenced by his father, who orked with the New York Police Department. His first inroad into science was a foray in forensics, but with a persistent interest in platforms that can address more than

one problem, he turned decisively to chemistry with some big plans.

Becoming an innovator is about having a big plan that is not resistant to serendipity, Serpe says. In keeping with his successful path, he says he'll continue working with as many people as he can, incorporating ideas from fields that see possibilities in his polymers that he never could. He says he is already putting his sensors to work with his colleague in Earth and atmospheric sciences, Arturo Sanchez-Azofeifa, on an environmental monitoring project to track pH levels in the tropical dry forests of Brazil.

"I plan to change things on many different fronts," Serpe asserts. "The polymers will help us alleviate water problems here in Alberta, but the applications are much broader than that.'

Zeng's Petro-Canada Young Innovator Award and the accompanying \$20,000 grant will go towards his proposed research project examining molecular interactions of asphaltenes in heavy oil.

"Asphaltenes are a complex mixture and they stick to surfaces such as pipelines," he explained. "During transport, they can block the flow of oil, which can further cause corrosion, erosion or even leaking."

He says asphaltenes can also stick to catalysts used to process or upgrade bitumen, causing "poisoning of the catalysts." Zeng's research will employ nano-scale experimental techniques to study how asphaltenes interact with other substrates at the molecular level. Ultimately, he says, "We want to figure out why asphaltenes stick.

He will examine the adhesive mechanisms and environmental conditions that cause the sticking to occur. This research will help the petroleum industry better understand and eventually solve the challenging issues of precipitation and adsorption (adhesion to a solid surface) of asphaltenes in oil production.

Phillip Choi, a previous Petro-Canada Young Innovator Award winner and current associate chair of research in chemical and materials engineering, said, "Dr. Zeng

has made fundamental and lasting contributions in the measurement of surface forces, particularly with respect to the measurement of adhesive forces.

For example, Zeng discovered that a wet adhesion mechanism that enables mussels to attach themselves to slippery surfaces could be applied to products such as naturally biodegradable glue for patching cuts and scrapes, or an industrial superglue that works in salt water.

Choi also commented on Zeng's dedication to teaching. "He does not merely supervise his graduate students, but spends the bulk of his day in the lab, actively engaged with them in their research projects. He spends a great amount of time mentoring his students and other students who have looked to him for his expertise, knowledge and experience.



Young innovators: Michael Serpe (top) and

Zeng says he is excited to begin this project, and excited about its prospects. "The results of this research could also stimulate future research and develop an even more excellent research program at the University of Alberta." In

Writers Guild nominations

Continued from page 1

which tells the story of a trip to Florence to see Michelangelo's David and his unfinished sculptures known as the Prisoners.

"I was inspired by the unfinished work of Michelangelo to write a story about life as art and how we feel unfinished when it comes to our dreams and passions and hopes for the future and regrets of the past, but how we embrace these parts of ourselves anyway," said Budgeon, who says taking creative writing classes at the U of A has completely changed his life. "The confidence and knowledge about creative writing that I have garnered is invaluable."

Lynn Coady, 2008-09 writer-in-residence and editor of the U of A-affiliated magazine Eighteen Bridges, was nominated for the Howard O'Hagan Award for

CHINA



Sydney Budgeon in Cortona, Italy.

Short Story for "Dogs in Clothes." Last year's U of A writer-in-residence, Richard Van Camp, was nominated for the Georges Bugnet Award for Fiction for his shortstory collection, Godless but Loyal to Heaven.

The Alberta Literary Awards recognize and celebrate the highest standards of literary excellence from Alberta authors. The Writers Guild of Alberta is the largest provincial writers' organization in Canada, and was formed in 1980 to provide a meeting ground and collective voice for the writers of the province. Winners will be announced May 25. In

Brown bag brainstorming

Continued from page 1

your flagship stores," she said. "It's the same with university systems in the U.S. You have to have a big flagship—that's what we have to get across.'

Ferguson-Pell said one of the frustrating challenges with the letters of expectation is the perception that Alberta's post-secondary institutions are working in silos, which he added isn't true. Alberta is a leader in the country in terms of transfer agreements, he noted, and the U of A has played a large role in that and other collaborations such as the recent push to improve student mental health services.

"We certainly are committed to improving transferability but we have to be careful not to beat ourselves up too badly," he said.

Arts professor Ian MacLaren, who co-chaired the Renaissance Committee, said one key point the university needs to get across is the U of A's role in sustaining the post-secondary sector that contributes to

"We provide the ongoing education that's needed to sustain the postsecondary sector, of which no one is ashamed," he said.

Ferguson-Pell said he was grateful for the ideas shared, which add to a thoughtful and valuable discussion also occurring online through Change@UAlberta and Colloquy. In

Green thumbs

Adopt-a-Flower

t starts as a spot of colour in a

sea of brown. But slowly, that

single spot will blossom into a

field of greens, reds, oranges, blues

and purples—that is, if there's some

That blossoming of colour is

what the Adopt-a-Flower program

was made to encourage, with vol-

unteers helping to add vibrancy to

campus. With more than 130 plant-

ers and another 15 planting beds,

adoption for anyone interested.

Tom McLean, manager of

Operations, said those locations

provide a perfect opportunity for

faculty and staff to get outside and

get fresh air while contributing to

McLean. "A lot of people can be

chained to their desk here at the

"It is about getting outside," said

the look of campus.

landscape services for Facilities and

there are plenty of locations up for

one to nurture that single spot.

wanted for

program

Justin Bell

Teacher takes students back in time to unearth technology's hidden past

Michael Brown

ntil one of his students invents a time machine, Lech Lebiedowski is going to make sure attending his history classes is the next best thing.

The history and classics instructor, whose History of Technology class has become a staple humanities option for science and engineering students, is well known for unearthing the forgotten side of history and introducing first-hand Indiana Jones-inspired adventures to

Where else will students learn that Sir Isaac Newton battled paranoia likely brought on by a steady diet of mercury he regularly ingested, thinking, as did many of his fellow alchemists, that it was the elixir of life? Or that James Watt, whose steam engine helped power the Industrial Revolution, did not invent the steam engine and successfully blocked the introduction of improved steam-engine adaptations until his death in 1819?

"I try to make history an adventure, sort of like time travel," said Lebiedowski, who received a Students' Union Award for Leadership in Undergraduate Teaching, or SALUTE award,

March 25. "I take students to various time periods and various events and try to show them those events through the eyes of the people of the age, and put everything in that context.

"I try to talk about people who are inventors who never really got credit for their work. We talk about big names, but always in the context of the forgotten people, and mostly I try to tell them things they will not find on the Internet.'

Lebiedowski, who says his academic career is simply an extension of a treasure-hunting passion he first felt as a 12-year-old boy when he found a Second World War motorcycle in the woods behind his home in Warsaw, Poland, believes in bringing his experiences as a treasure hunter, restoration hobbyist and weekend archeologist to uplift his classroom.

When I talk about various technologies, I usually have interacted with them at some point in my life, so I can talk about these things, adding my personal experience to it," he said. Besides breathing new life into his childhood motorcycle, Lebiedowski, who received all three of his degrees from the University of Alberta, has dug up and rebuilt a Messerschmitt Bf-109 German fighter plane and a Japanese kamikaze plane, and has also unearthed hundreds of items, from coin deposit boxes to battle tanks.



Lech Lebiedowski

He says these experiences help him bring history alive, enriching subject matter that is just a push of a button away

"In many ways, teaching history is all about telling stories, and any story can be told from various perspectives and is open to different interpretations," said Lebiedowski. "I like to show students that nothing is black and white, and my personal research really amplifies that. At the same time it really makes them interested, and they try to do their own work and own research. and they come up with their own ideas.

Cameron Lee, who nominated Lebiedowski for the SALUTE award, says he was inspired by his HIST 391 instructor's ability to teach as opposed to just lecture.

"Lech takes a much more useful and interesting approach by focusing on why the events occurred, and how they were influenced by other factors," he wrote in the nomination letter. "Lech succeeds in captivating his students in a way that results in a deep understanding of the material."

Lebiedowski says there are two sides to that 18th-century Spanish doubloon, explaining that his teaching philosophies work largely because of what he considers the university's greatest strength: the students.

"I was inspired by many professors while I was doing my degrees, but the best part about the university is the students who are really willing to learn and are really curious about things." In



university. There's more to campus than the four walls that surround your office.' For those without a green thumb, Facilities and Operations will help

out with choosing the proper plants and running through procedures, such as watering and deadheading. But for the true green thumbs, the program offers a complete

responsibility option. Participants can plant whatever they want and are responsible for everything from purchasing the flowers to ensuring they are watered every day.

"If someone has a question, that's where I come into play. I'm the last leg of the fence. I'm more than happy to steer them in the right direction. We just want to get people involved," said McLean

The program was started in 2003, built around the Senate's Task Force Report on Wellness, which pushed more involvement in wellness initiatives on campus.

"When we started, it was just an idea we had adopted from another university to get staff involved and helping us out with planters and keeping the campus looking good," said Wayne McCutcheon, project co-ordinator with landscape services. "Having that little bit of extra colour keeps campus looking its best. It provides a good first impression for visitors on campus.

Planters take about an hour of work a day, but that can easily be split between multiple people from a faculty or department.

Those green thumbs adventurous enough to plant herbs, vegetables or any other edibles will have a chance to show off their crop at an event organized by the Office of Sustainability in August.

For more information about the Adopt-a-Flower program, visit virtualwellness.ualberta.ca and search under the "Active Living for

To register, contact Sarah Flower, program consultant and EFAP administrator with Human Resource Services, at sarah.flower@ualberta. ca or 780-492-2249. Registration is open until the end of April.



Lech Lebiedowski poses with the Second World War Messerschmitt Bf-109 German fighter plane he rebuilt

Swimming dinosaurs help researchers track evolution

Leaving evidence in its wake: Artist's rendering of a

carnivorous two-legged dinosaur swimming in a river, making claw marks as it touches bottom with its tiptoes.

inosaurs are long extinct but their role in understanding life on Earth in the 21st century is vital, says a dinosaur researcher at the University of Alberta.

"Humans have been around for about 200,000 years; dinosaurs ruled for Earth for 160 million years," says U of A paleontologist Scott Persons "From dinosaurs we've learned about colour vision in some of today's animals, and the ancient animals are linked to the evolution of other life we take for granted, like birds and flowering plants." Persons' latest PhD research

has produced some of the strongest evidence ever found that dinosaurs could paddle long distances. Persons arrived at that conclusion after examining unusual claw marks on fossilized rocks found in China.

Persons' swimming-dinosaur study involved working with an international team of researchers in China's Szechuan Province. Persons determined that a series of claw marks found in now well-known dinosaur tracks were left by the tips of a two-legged dinosaur's feet.

"The dinosaur's claw marks show it was swimming along in this river and just its tiptoes were touching bottom," said Persons.

The claw marks cover a distance of 15 metres, which the researchers say is evidence of a dinosaur's ability to swim with co-ordinated leg movements. Persons says the tracks were made by a carnivorous, two-legged dinosaur he estimates to have stood roughly one metre at the hip.

The research was conducted with a team of paleontologists on the ground in China, but Persons says he and his fellow U of A dinosaur hunt ers don't have to go far afield to make important discoveries—one of the reasons he decided to study at the university.

"I don't even have to leave the Edmonton city limits, and when I do, the fossil treasure trove in the Alberta badlands is less than a day's leisurely drive away," said Persons.

Persons and his colleagues from the Szechuan Province fossil site will continue to analyze the dinosaurs' swimming prowess with hopes that it will yield evidence related to today's

> animals. In the meantime, Persons offers a few links paleontology has already established between life on Earth 65 million years ago and today.

Want to know why our pet dogs or livestock have limited colour vision? It's because early mammals sacrificed cones for rods in their eyes so they could see better in the dark and better avoid dinosaurs.

Want to understand the widespread success of modern flowering plants? Well, they evolved under the selective pressures of herbivorous dinosaurs.

"Want to know where birds come from? Dinosaurs.

Persons was a co-author on the research, which was published April 8 in the journal Chinese Science Bulletin.

Researchers tunnel path out of the lab and into the real world

team of University of Alberta civil engineers has taken its research out of the lab and installed it in a City of Edmonton sewer and drainage tunnel project, 30 metres beneath the city's west end.

The U of A team tested its new laser guidance technology on machinery boring a kilometre-long tunnel from its starting point at 151 St. and 99 Ave. to 93 Ave

The U of A researchers, led by civil and environmental engineer ing professor Ming Lu, developed a multi-point laser beam system that improves the steering and the efficiency of tunnel-boring equipment.

"When you're boring a tunnel, you're flying blind," said Lu. "It's quite a challenge to keep large pieces of equipment on course.

On the majority of tunnelling projects, current tunnel boring guidance systems use just one point of laser light to stay on track.

At 2.5 metres in diameter, the city's sewer and drainage tunnel demands a high quality-control standard. Its alignment must not stray off course by more than two inches-and the field of vision from the machine is limited to a corner of

L U of A researchers have made a real contribution to improving construction productivity."

Ming Lu

The U of A's new technology is called the Virtual Laser Target Board. It uses a survey robot that automatically takes multiple laser measurements in the tunnel to position itself and the machine with high precision, enabling operators

to have better control over the equipment on the fly, says Lu.

Lu began the computing research for the technology six years ago. Its first field test was a small-diameter tunnel project for utility cables in Hong Kong. With funding support from the City of Edmonton and the Canadian technology funding group Tecterra, Lu's team upgraded the computing algorithms and was ready to field test the equipment on Edmonton's 2.5-metre-diameter sewage and drainage project.

Lu says the city relied on the current one laser point guidance system on this project and compared its performance with that of the U of A equipment. He says the city was impressed.

"With the new technology, the tunnel boring machine operator will no longer work in darkness, and the quality of the tunnel alignment can be controlled within a few millimetres.

With the current, single laser beam technology, the tunnelling

operations have to be shut down every 10 metres for one hour so the operators can check the laser direction," said Lu. And the digging is halted for another seven hours every 200 metres while the single laser equipment is repositioned in the tunnel.

"Our equipment only requires a half-hour work stoppage and laser repositioning at 200-metre intervals," said Lu.

Time is money in the construction business, and Lu says the potential productivity gain resulting from the U of A technology could save 10 per cent on project time and direct costs on a straight

tunnel like the west-end sewer and drainage tunnel.

Lu says this is a win-win for the U of A civil engineering team and the City of Edmonton. The field test will help with the eventual commercialization of the technology, but that's not the most important accomplishment.

"With this project our U of A graduate researchers got their research out of the lab and into the real world," said Lu. "It also shows U of A researchers have made a real contribution to improving construction productivity and, in the end, improving people's lives." 🖪

Undergraduate Spring/ Summer U-Pass begins

Elizabeth Driedger

√ransit just got more accessible for University of Alberta undergraduate and graduate students planning to take a course or two over the spring and summer months. Undergraduate students who are taking courses in the 2013 spring or summer semesters are now eligible to use the Spring/Summer U-Pass. As of April 15, they can stop by their nearest InfoLink location to pick up a sticker.

For the past two years, U of A graduate students have been able to enjoy the financial, social and environmental benefits of the Edmonton area's only spring and summer U-Pass program. And after the success of the graduate program, it didn't take long for undergraduate students to ask for one too. In a Students' Union referendum last March, 83 per cent of undergrads voted yes on the matter.

Aside from proud ownership of a shiny new sticker, what does the Spring and Summer U-Pass mean for students? U of A student Claude Alain St. Amand Hubert thinks "it will be a good deal" financially. He explains that monthly "bus passes are really expensive"—the average monthly pass is now \$90-and at just \$116.67 for four months, the U-Pass should make transit more accessible for students.

Saadiq Sumar, Students' Union vice-president of student life, hopes that along with saving money, "students continue to take full advantage of this program by not only using it for academic purposes but also exploring what Edmonton, Strathcona County and St. Albert have to offer. The three municipalities have rich culture and heritage, and students should strive to learn more than just what is being taught in the classroom.

Students like Christine Kaspick agree with Sumar's broader view of the program. Kaspick says participating students will "still have [access to transit during] the evenings and weekends," which means that after class, they will still be able to use the U-Pass to get to their summer jobs or to the many events and festivals that take place around the city.

For Trina Innes, director of the U of A's Office of Sustainability, the U-Pass benefits go even further. "Small lifestyle changes, such as taking public transit, are simple and inexpensive ways of making your life more sustainable," she says. "The U-Pass not only reduces the environmental impacts of our students' transportation, but also makes public transit more accessible, ultimately increasing support for more sustainable transportation now and into the future.

The Spring/Summer U-Pass will be valid between May 1 and Aug. 31. Undergraduate or graduate students whose classes don't begin until June can still collect their U-Pass sticker starting April 15. Students who want to find out whether they are eligible can check their "Fee Assessment" on Bear Tracks.

YouAlberta is the official blog about student life at the U of A. Its contributors are members of the Student Communicators Team, and as current students, they know what it's like to balance study, work and play at the U of A. I



The newly expanded Spring/Summer U-Pass program offers U of A students more access to public transit in Edmonton, Strathcona County and St. Albert.



Engineering professor Ming Lu and his team at the U of A are testing their new laser guidance technology on machinery boring a kilometre-long tunnel in west Edmonton



Researchers abuzz over caffeine's cancer-killing properties

esearchers from the University of Alberta are abuzz after using fruit flies to find new ways of taking advantage of caffeine's lethal effects on cancer cells—results that could one day be used to advance cancer therapies for people.

The U of A has a reputation for cooperation, and that's not the case everywhere."

Rachel Wevrick

Previous research has established that caffeine interferes with processes in cancer cells that control DNA repair, a finding that has generated interest in using the stimulant as a chemotherapy treatment. But given the toxic nature of caffeine at high doses, researchers from the faculties of medicine and dentistry and science instead opted to use it to identify genes and pathways responsible for DNA repair.

'The problem in using caffeine directly is that the levels you would need to completely inhibit the pathway involved in this DNA repair process would kill you," said Shelagh Campbell, co-principal investigator. "We've come at it from a different angle to find ways to take advantage of this caffeine sensitivity.

Lead authors Ran Zhuo and Xiao Li, both PhD candidates, found that fruit flies with a mutant gene called melanoma antigen gene, or MAGE, appeared normal when fed a regular diet but died when fed food supplemented with caffeine.

On closer inspection, the researchers found that the mutant flies' cells were super-sensitive to caffeine, with the drug triggering "cell suicide" called apoptosis. Flies fed the caffeine-laden diet developed grossly disfigured eyes

Through this work, the research team identified three genes responsible for a multi-protein complex, called SMC5/SMC6/MAGE, which regulates DNA repair and the control of cell division. Neither process works properly in

Co-principal investigator Rachel Wevrick explains that this finding is significant because it means that scientists one day could be able to take advantage of cancer-cell sensitivity to caffeine by developing targeted treatments for cancers with specific

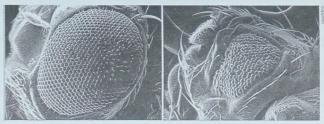
genetic changes. Their results were published in the March issue of the peer-reviewed journal PLOS One.

"Unless you actually know what it is those proteins are doing in the first place to make a cell a cancer cell instead of a normal cell, it's hard to know what to do with that information," she says. "You need to know which genes and proteins are the really bad actors, how these proteins work and which of them work in a pathway you know something about where you can actually tailor a treatment around that information."

Along with Wevrick and Campbell as lead investigators, the project also included biological sciences professor Kirst King-Jones and medical geneticist Sarah Hughes. It's the type of researchintensive environment that benefits students who gain experience working with peers as part of a team, Wevrick says.

"The U of A has a reputation for co-operation, and that's not the case everywhere. People here are very willing to share their results and their successes, and work together."

The research was funded by the Cancer Research Society, the Canadian Institutes of Health Research and the Natural Sciences and Engineering Research Council



ages showing the normal eye of a fruit fly (left) and the disfigured eye of a fruit fly fed a caffeine-supplemented diet. The fly had a genetic mutation that made it supe sensitive to the stimulant.

Study shows stressed squirrels have faster-growing offspring

niversity of Alberta biologist Stan Boutin uses a simple analogy to describe a breakthrough research paper on the behaviour of squirrels.

"You try to prepare your kids for what they'll face when they get out in the big, real world," said Boutin. "Female squirrels in our study were doing that too for their offspring.

Boutin is the senior investigator of a long-running squirrel research project in the Yukon and co-author of a paper showing that female red squirrels use stress hormones to give their offspring an edge in the competition for survival.

"A key challenge for squirrels is the population density of other squirrels and the food supply they all depend on," said Boutin.

It's well established that squirrels are very territorial, and identify and defend their living area with shrill chattering noises. Boutin says the level of communications between squirrels in an area of the forest is a cue by which females gauge future density and levels of competition to establish and maintain a territory.



A juvenile North American red squirrel in the Yukon.

Researchers in the field decided to test the squirrel's reaction by manipulating these density cues. They played audio recordings of squirrel chatter, tricking female squirrels into reacting as if the number of competitors were suddenly heightened.

"What graduate student Ben Dantzer found is that the babies of females subjected to the audio recordings grew at a much more rapid rate," said Boutin. "The mothers perceived a tough future for their offspring because density appeared higher, and babies that grow more quickly can sooner fend for themselves and outcompete other squirrels for valuable territories."

Boutin admits to being surprised by what happened next. Researchers found that the offspring's growth kick-start was the result of the mothers producing a stress hormone.

The stress hormone cortisol was found at elevated levels in the droppings of female squirrels exposed to the audio recordings.

In another experiment, females received peanut butter treats laced with the stress hormone. "Sure enough," said Boutin, "the offspring of those squirrels also grew at a faster rate than control females given just

The researchers say their results fly in the face of long-held theories that stress in females only spells trouble such as lower birth rates, smaller litters and smaller babies.

Boutin describes the research team's field work as elegant.

"The females are doing something for the future," said Boutin. "It's an adaptive and predictive response showing females are running the show in terms of preparing their offspring for what they're going

The research was led by Ben Dantzer at Michigan State University. It was published April 18 in the journal Science Express.

New Augustana tradition asks students to keep calm and chime on

Michael Brown & Christopher Thrall

To ring in the last days of undergraduate classes April 11 and 12 for 184 Augustana students set to graduate in June, dean Allen Berger invited each one to take part in a new tradition on Augustana Campus—the ringing of the bell.

The bell is part of the massive three-part centennial sculpture, Augustana: Beyond a Certain Phrase, unveiled in quad last summer. Students were given their grad cap and gown, handed the huge hammer and invited to chime on. Every time the bell sounded, its deep tone drifted out across campus to cheers and applause

"Tradition is an important part of the graduating ceremonies: the gowns, eagle feathers and even music choices have historical roots," wrote Berger in inviting the graduating class to come swing the bell hammer.

Berger went on to say the sculpture was always intended to be more than campus beautification. Edmonton artist Royden Mills also crafted a large wooden hammer to be used to strike the bell on the sculpture, "sending a tone that travels to every corner of campus and beyond.

"If you hear other students ringing the bell at that

time, give them a round of applause—it will be their



Monique Gagnon sits inside the bell of the Augustana sculpture 'Augustana: Beyond a Certain Phrase.

final send-off to class time at Augustana," said Berger. "They will be marking the end of an important phase of their lives and welcoming in a new era, full of promise enhanced by the solid grounding that their Augustana education has provided."

He added, "Keep calm and chime on."

Are You a

Congratulations to Vicki Kish who won a Butterdome butter dish as part of Folio's April 5 "Are You a Winner?" contest. Kish identified the location of last issue's photo as the SUB hallway next to the food court. Up for grabs is a copy of Naming Edmonton: From Ada to Zoe, courtesy of the U of A Press. To win it, simply identify where the object pictured is located and email your answer to folio@ualberta.ca by noon on Monday, April 29, and you will be entered into the draw.



Honorary degree recipients announced

Michael Brown

The University of Alberta didn't have to look too far to find 11 inspiring individuals to celebrate with honorary

The majority of this year's honorary degree recipients have strong links to the U of A, whether they are alumni, collaborate here or simply assist the U of A in its promise of uplifting the whole people. But no matter the strength of their previous connections, this year's honourees will have a new link to the U of A that can never be broken.

"A University of Alberta honorary degree recognizes contributions ranging from creative innovation in the arts and sciences to enlightened service in human health and public institutions," said university chancellor Ralph Young. "Each of these recipients possesses a rare combination of talent and dedication to the greater good. I welcome the opportunity to introduce them to the next generation of leaders who will make their mark in our community and around the world."

For over a quarter century, Margaret-Ann Armour—engaging chemistry professor and



alumna—has been Canada's premier ambassador of science. Volunteering tirelessly to encourage girls and young women to consider careers in the sciences and engineering, she has created and nurtured a range of initiatives through Women

in Scholarship, Engineering, Science and Technology, or WISEST. As associate dean of science (diversity), Armour has also developed and implemented Project Catalyst, a series of actions to increase the percentage of women in faculty positions. A talented researcher, Armour has a well-documented passion for teaching and outreach. Her love of engaging students in chemistry was rewarded in 1996 with a 3M Teaching Fellowship, Canada's premier award for undergraduate teaching. Armour was named to the Order of Canada in 2006. Honorary doctor of science degree - June 11 at 10 a.m.

According to many of the world's top glaciologists, environmental photographer James Balog

has done more than anyone else to communicate the impact of a warming planet on the Arctic Using complex time-lapse photography, Balog



has brought into the public eye dramatic evidence of change to the ice sheets and glaciers of the Northern Hemisphere. Balog has captured timelapse images from Western British Columbia ice sheets and developed a photography system to use in the high Arctic. These cameras are part of Balog's Extreme Ice Survey, which documents dozens of glaciers around the world hourly and is considered the most wide-ranging glacier study ever conducted using ground-based, real-time photography. In 1996, Balog became the first photographer commissioned by the U.S. Postal Service to create a full set of stamps. His honours include North American Nature Photography Association's Outstanding Photographer for 2008 and PhotoMedia's Person of the Year for 2011. Honorary doctor of science degree -June 12 at 10 a.m.

For nearly 30 years, awardwinning novelist and Saskatchewan rancher Sharon Butala has shared her insight into life on the Canadian prai-

ries—experiences driven by an ethos that is both environmentalist and feminist, in works that emphasize the value and glory of rural life. Butala is the author of 16 books-including bestsellers The Perfection of the Morning (1994), Coyote's Morning Cry (1995), Wild Stone Heart (2000) and Lilac Moon: Dreaming of the Real West (2005)—along with dozens of articles and essays, and five produced plays. Her examinations of nature, human creativity. identity and spirituality, and her first-hand look at the Canadian prairies, make her contributions to Canadian culture original, important and enduring, Butala's lyrical and eminently readable writing is essentially connected to the lives of ordinary people in Western Canada. In 2002, she was named an officer of the Order of Canada. Honorary doctor of letters degree - June 2 at 2:30 p.m. (Augustana Campus); convocation speaker June 5 at 3 p.m.

Lincoln Chen has dedicated his skills as a doctor, an academic and a policy advisor to



fostering collaboration and building health capacities around the world. Chen began his medical career studying cholera physiology and epidemiology at the Cholera Research Laboratory in

Bangladesh. Relief work during a cyclone in 1970 expanded his view on health issues to include social equity through the pursuit of poverty alleviation, health, education and social development. As professor at the Harvard School of Public Health, Chen founded the Harvard Global Equity Initiative and has co-chaired the Joint Learning Initiative on Human Resources for Health. More recently, Chen, who was born in Jiangxi province, China, has spent the past five years as president of the China Medical Board, a private foundation to advance health in China and Asian countries through strengthening medical, nursing and public health research and education. Chen sits on numerous boards and has served as an advisor for the World Bank and World Health Organization, including a stint as the director-general's special envoy on human resources for health. Honorary doctor of science degree – June 7 at 10 a.m.

It may be difficult for current students to imagine the courage and breadth of imagination a young woman needed in the 1960s to become a lawyer, to practise law and to embrace the possibility of becoming a judge. The Honourable Catherine Fraser, chief justice of both Alberta and the Northwest Territories, graduated from the U of A in 1970 and embarked on a pioneering career in law. She transformed the judiciary

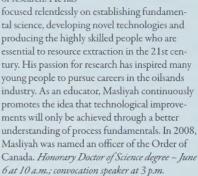
by becoming an early female appointee to the bench, culminating in her appointment as the first woman chief justice in Canada. Adding to her list of firsts, in 1999



Fraser accepted the role as the first chief justice of the Nunavut Court of Appeal. An active member of the Canadian Judicial Council, she has also served on the board of governors of the National Judicial Institute. A staunch advocate for judicial education at home and abroad, she is widely respected for championing technological reforms in Alberta courts and introducing innovations to increase access to justice. Honorary doctor of laws degree - June 4 at 3 p.m.

Jacob Masliyah has made groundbreaking contributions to the creation of operations and processes that are more energy- and waterefficient, thereby making extraction from the Alberta oilsands more commercially viable and environmentally sound. A professor emeritus

in the U of A's Department of Chemical and Materials Engineering, Masliyah has played a pivotal role in the emergence of a world-leading centre of research. He has



The Indian-born Deepa Mehta has been described as Canada's most internationally renowned woman filmmaker. Her films set in Canada-Sam and Me (1991), Camilla (1994)



and Bollywood-Hollywood (2002)—have been acclaimed as sharply observed and gently comic dramas. But trilogy set in

(1996), Earth (1998) and the Oscar-nominated Water (2005)—that has distinguished her as one of the leading Canadian filmmakers of her generation. Critics hailed Mehta for her courage in taking on many of the traditional values of Hindu society, and suffering much criticism and even censorship in the process. Her most recent film, Midnight's Children (2012), is a powerful and thought-provoking collaboration with author Salman Rushdie. Mehta's filmmaking demonstrates the richness of Canadian culture: a form of multiculturalism that may best be described as fluid or hybrid, composed of the culture of her home country interacting with that of her adoptive country. Honorary doctor of letters degree - June 5 at 10 a.m.

Louise Miller's dedication to advancing research, technology, health care and education related to spinal cord injuries is nothing short

of inspirational. A spinal cord injury resulting in paraplegia in 1984 was the catalyst for Miller's subsequent lifelong advocacy for people with disabilities, particularly those with spinal cord injuries. As



a staunch defender of the interests of disabled people, Miller co-founded the Spinal Cord Injury Treatment Centre Society in Edmonton. A U of A alumna, she has served as a leader with the City of Edmonton's Custom Transportation Services, the Canadian Paraplegic Association (Edmonton), the Alberta Paraplegic Foundation, and the City of Edmonton Task Force on Persons with Physical Disabilities. In 2000, Miller was appointed as a member of the Order of Canada. În 2008, she received the Canadian Medical

Association Medal of Honour. Honorary doctor of laws degree June 10 at 3 p.m.

The Honourable Jim Prentice, a U of A alumnus, has served at the helm of some of the federal government's most sensitive ministries Indian affairs and northern development, industry and, most recently, environment. After practising commercial law in Calgary, Prentice was elected to the House of Commons as the member of Parliament for Calgary Centre North in 2004, and was re-elected in 2006 and 2008. Described by Prime Minister Stephen Harper as the chief operating officer of the Government of Canada, Prentice wore many hats during his time in office, including serving as Canada's negotiator for the climate change negotiations that culminated in the Copenhagen Accord of 2009. In addition, he harmonized carbon emission policies for the Canadian and American transportation network and established the national policy to phase out dated coal-burning plants in Canada. In January 2011, Prentice joined CIBC as senior executive vice-president and vice-chairman. Honorary doctor of laws degree -June 13 at 10 a.m.

Former Alberta premier Ed Stelmach's 25 years of public service were marked by a commitment to leadership and integrity. A lifelong farmer, Stelmach began his run in politics in 1986 as a municipal councillor for Lamont County before being named reeve a year later.

tered provincial politics in 1993 when he was elected as a member of the legislative assembly for the riding of Fort Saskatchewan-Vegreville As MLA, he



led four ministries, including infrastructure (1999-2001), and supported the creation of the Health Research Innovation Facilities—now the Li Ka Shing and Katz Group centres—that have been instrumental in attracting top-tier talent to our community. Stelmach became premier after winning his party's leadership race in 2006 and went on to win the general election in 2008. As premier, Stelmach supported efforts to end homelessness and create affordable housing. He also recognized the importance of diversifying the economy and seeking global leadership to help shape the province's future. Honorary doctor of laws degree June 11 at 3 p.m.

Ian Stirling's 40-plus years of research have illuminated the plight of polar bears and the consequences of climate change on the Arctic. His outspoken advocacy for the North and his dedication to conservation of ecosystems has

made him a true champion of the Canadian Arctic. Between 1970 and 2007, Stirling was research scientist with the Canadian Wildlife Service of Environment Canada, where his work



extended beyond polar bears to include other Arctic marine mammals such as the ring seal, bearded seal, beluga whale and walrus. Since 1979, Stirling has been an adjunct professor in the U of A's Department of Biological Sciences. To date, he has directly supervised or co-supervised 10 master's students, seven PhDs and two post-doctoral fellows-responsibilities that are not typically part of a government scientist's role. An elected fellow of the Royal Society of Canada, he has inspired the next generation of northern biologists through his teaching and research. In 2000, Stirling was made an officer of the Order of Canada. Honorary doctor of science degree - June 12 at 3 p.m.

Glass-blower sees work as a window to ideas

Michael Brown

or centuries, glass has afforded anyone on the → outside looking in an unobstructed view of just about everything. In the case of university glassblower Jason Dibbs, that includes ideas.

"The interesting thing about working with students is that I get to make something that has never been made before, because they're writing their PhD on something that has never been done before," said Dibbs, who has been blowing glass at the University of Alberta for five years. "I now have this knowledge I've gained from interacting with bright people from all these different departments."

ff I get to make something that has never been made before, because they're writing their PhD on something that has never been done before."

Jason Dibbs

To ensure the only limiting factor of a chemical experiment is the imagination, and not the rigid forms of test tubes and beakers, Dibbs is responsible for ushering novel experiments past the point where standard glassware stops them.

"Say you have a standard beaker and you want to have a drain on the side. I can just put a hole in the side for you; that is a simple modification," said Dibbs. "I get people in who have sketched something on a paper towel and say, 'I want this liquid over here and this gas to mix, and when that's done I want it to go here.' If it's glass, I'll make them an apparatus for that.

Dibbs is principally employed in chemistry, but he says he works for "everyone under the sun," including

staff spotlight

engineering, medicine, pharmacy, physics, biology, and Earth and atmospheric sciences.

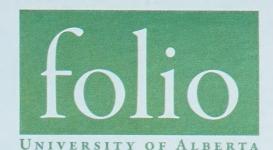
'Everyone's requirements are different. What someone needs in engineering is a lot different from the requirement of someone working in chemistry," said Dibbs. "Because I get to work with so many different groups, I get to learn a little bit about what everyone else is doing and get to be a central resource for people who require glass.

Dibbs says his job includes everything from repairing glassware to preparing a piece for the physics department that was destined for the Large Hadron Collider at CERN in Switzerland. "I have a piece in there somewhere—I was told it was installed.

Whether he is aiding the world's physicists in their search for the "God particle" or fastening a nipple onto a beaker, Dibbs says there is a common miscon-

ception about how scientific glass-blowing works.
"When people think of glass-blowing they think of starting with a molten vat of glass; that's not what I do," he said, adding his tools of the trade start with pre-manufactured glass components, tubing and rod, and a selection of torches. "What I do is very similar to welding, but normally I don't have to add any welding rod. If I have two pieces they will just stick together.

"I can also enlarge a piece, I can shrink a piece, I can stretch it out, shape it. The thing I like about working with glass is it's very quick to make a piece. When I heat it up it becomes a liquid, so as long as I can control that liquid I can get it in the right shape. When it cools, that is my final product." In



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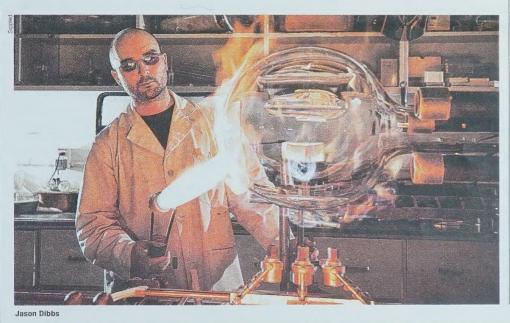


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Going nano to improve drug delivery City hears from citizens' panel

Bryan Alary

University of Alberta researcher is thinking small to find innovative ways to improve the delivery of drugs that can be more easily administered with fewer

Afsaneh Lavasanifar, a professor in the Faculty of Pharmacy & Pharmaceutical Sciences, has developed and patented a polymer platform technology that can carry drugs to specific areas of the body at a nanoscopic scale. The polymeric nanostructures contain an outer shell and inner core that are capable of encapsulating drugs that the body normally has a hard time absorbing and processing.

"Making drugs water soluble is a major problem in drug development, Lavasanifar says. "When drugs are not water soluble, they cannot be absorbed efficiently by the body or administered efficiently, making them

Lavasanifar developed the polymer over three years and published her initial findings in 2006. With support from TEC Edmonton, in 2010 she launched her own company, Meros Polymers, and currently serves as vicepresident and chief science officer.

The company secured a U.S. patent for the polymer late last year, with patents pending in Europe and Japan, and was recently named a semifinalist in the fast-growth category of the TEC VenturePrize.

In addition to solving water insolubility, the polymer could be used to target delivery of drugs in specific areas of the body. Much of Lavasanifar's research has focused on



Pharmaceutical researcher Afsaneh Lavasanifar's patented nano-scale polymer could improve drug absorption, help target delivery and reduce side-effects.

drugs, some of which can be harmful to organs such as the heart or kidneys

We can change the normal distribution of the anti-cancer drug in the body and get the drug into the tumour and away from the site where it causes toxicity," she says.

A polymer within this platform that shows unique thermo-reactive properties—it's liquid at room temperature but turns into a gel when warmed to body temperature—has potential applications for eye-drop drugs, antibiotics or antipsychotics—reducing the need for repeat doses or costly administration by a health professional.

A third structure within this family also has potential as a delivery system for small interfering RNA technology, or siRNA, which allows scientists to heat and silence specific genes in a cell. The siRNA technology has not yet been used as a therapeutic agent because it breaks down in the body and has a hard time entering cells.

Lavasanifar is working with other researchers on using the polymer to deliver siRNA in lab models. "Our

the targeted delivery of chemotherapy long-term plan is to see if we can get siRNA delivery in humans," she says

Meros is working with Alberta Innovates - Technology Futures to evaluate the toxicity of the polymer, a step needed for regulatory approval. Lavasanifar is confident about the results, noting the "backbone" of the polymer has been used in absorbable sutures for many years.

Moving from lab bench to boardroom was a new experience for Lavasanifar, but she credits TEC Edmonton and her colleagues at Meros for providing invaluable expertise, especially early on. The university and pharmacy faculty have been tremendously supportive of her work, she adds.

'Without the U of A's support and funding from granting agencies, I would not be able to put my ideas into action.

Lavasanifar's research was funded by the Natural Sciences and Engineering Research Council of Canada, Canadian Institutes of Health Research and Alberta Cancer

Lana Cuthbertson

University of Alberta-led citizens panel that developed climate change and energy recommendations for the City of Edmonton presented their conclusions to city council April 15.

The panel studied key reports and studies that outlined plans to shift Edmonton's reliance on carbon-based energy sources to cleaner energy sources and uses. After more than 42 hours working together on these energy and climate issues, the 56 panellists agreed to recommend city council move forward with a bold shift in energy use in the city.

Alberta Climate Dialogue and the Centre for Public Involvement, both based at the U of A, along with the City of Edmonton, co-ordinated the panel of citizens to discuss Edmonton's climate and energy issues last fall. The group, the Citizens' Panel on Edmonton's Energy and Climate Challenges, reflected together on values, tradeoffs, costs and benefits over the course of six Saturdays from October to December 2012.

The panel members' goal was to decide whether they, as representatives of the diverse population of the city, wanted Edmonton to become "low carbon," and to discuss ways of achieving that goal.

Their final report supports six key recommendations from an expert Energy Transition Discussion Paper commissioned by the City of Edmonton, with additional cautions and guidance from the panel.

The recommendations include working to green the city's electricity sources; encouraging mixed-use, denser urban development; making industrial operations more energy-efficient; and supporting cleaner energy use, energy efficient building practices, and transit.

"The panel represents Edmonton's diversity, not only demographically but in levels of environmental concern and degree of belief in climate change," said David Kahane, political science professor and project director of Alberta Climate Dialogue.

"This group found a lot of common ground: a strong majority concluded that a low-carbon pathway makes sense for diverse reasons relating to environmental responsibility, quality of life, cost savings and more,"

"I came in, and there were a few others who were like-minded, that we didn't believe the science of climate change," said Scott Hannah, a citizen participant in the panel. "But in the process, and one of the things we did agree on, is that doesn't mean the city shouldn't move forward with being smart about energy."

"A lot of the participants are really excited about continuing to be involved and continuing to use the skills and knowledge they learned, so I think that's a great resource for the city as well," said Fiona Cavanagh, project manager with the Centre for Public Involvement.

Marketing prof offers prescription for nutrition

Jamie Hanlon

t may seem counterintuitive to take health advice from a marketing professor, but when it comes to analyzing consumer data and its relationship to managing health issues such as diabetes, one University of Alberta researcher may have the right prescription.

In a paper recently published in the Journal of Marketing, Yu Ma, a professor with the Alberta School of Business, found the data on consumer spending contain streams of information showing that decisions consumers make after being diagnosed with a major health issue like diabetes may seem sound on the outside, but actually expose them to greater health risks. And although education related to disease and proper nutrition should be a major driver of changing habits, Ma says it ranks far lower than another critical factor that could affect the waistline and

"The second-largest factor—and only slightly less influential than eating habits—is price. If the price is cheap, they're going to buy that food item," he said. "There are lots of things you can do just by changing the price of

Ma says purchasing and consuming more fruits and veggies or organic foods is not an option for consumers in all income brackets. He says people may think middleclass consumers can easily afford to switch, but the price difference from the healthy option to the "next best thing" can be significant once the whole food bill is totalled up.

"If you compare the price of healthy, whole-grain bread versus regular white bread, there's a cost increase between them," he said. "Sometimes, if you have a family to feed, it's hard to justify the price difference."

Ma says it comes down to an issue of needs and wants, especially when the need to change eating habits is necessary to stay alive. Health should not be at a premium, he says, and if marketers looked at a bigger, socially respon sible picture, they may see the many benefits that would come from lowering their prices and making their products available to broader markets. He says companies may



Yu Ma crunched consumer data to find out how people change their eating behaviour after being diagnosed with major health issues like diabetes.

make less profit per customer, but making more money overall would go hand in hand with enhanced brand identity and recognition.

They might have to sacrifice some short-term profit, but once they build up their brand name, and the goodwill in the consumer's mind, then it's a win-win for the customers and the company in the long run."

Ma's data analysis also shows that after a diagnosis of diabetes, patients tend to cut down on the sugary beverages and foods that put them at risk for problems. Yet, while being hyper-vigilant with these choices, they tend to load up on other foods high in sodium or fat-two ingredients that could increase their chances of heart disease or high blood pressure. The key for people with diabetes, he says, is to consult a health-care professional about all foods that pose risks, both now and in the future

Ma says the other critical factor is that people have a tendency to divide foods into two groups: healthy and unhealthy. In doing so, they tend to over-consume foods in the healthy column

What we found is that people paid too much attention to categorization, but they failed to monitor how much of those healthy alternatives they actually take in," said Ma. "It's what we call the health halo effect."

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Centennial lectures highlight Alzheimer's and prosthetic limb discoveries

Faculty of Medicine & Dentistry Staf

overing the latest in neuroscience research from the brain to the fingertips, two University of Alberta medical researchers highlighted their work that is helping to close the gap between new discoveries and patient care.

66 Serendipity plays a big role in science."

Jack Jhamandas

Jack Jhamandas and Jacqueline Hebert spoke to a group of 120 colleagues and members of the public April 8 at the Katz Group Centre for Pharmacy & Health Research. The presentations were part of a centennial lecture series the U of A's Faculty of Medicine & Dentistry is hosting as part of its 100th anniversary, showcasing faculty members whose translational research is helping to move scientific discoveries "from bench to bedside."

Jhamandas, a neurologist and neuroscientist in the Department of Medicine and the Centre for Neuroscience, gave an overview of his research on Alzheimer's disease, which

affects one in nine Canadians by the age of 65. That number increases to one in three by age 85.

Jhamandas and his team discovered that a drug intended for diabetes appears to restore memory in brain cells affected by Alzheimer's. In the lab, the team tested brain tissue from animal models with Alzheimer's disease, looking at the cells' memory capacity. To test memory, they shocked the brain cells with electrical impulses and then measured the cells' abilities to "remember" the experience.

Researchers have known for a long time that people with diabetes are at higher risk for Alzheimer's, and vice versa. A protein called amyloid, which diminishes memory, is present in abnormally large amounts in the memory and cognition parts of the brains of Alzheimer's patients. A sister protein, known as amylin, which comes from the pancreas of patients with diabetes, has the same impact on memory cells.

Jhamandas and his team used AC253, a diabetes drug that never made it to market, to try to block the toxic effects of amyloid protein on brain cells. When the drug was given to brain cells with Alzheimer's, their memory trace was restored to levels similar to those in normal cells. In the lab models, the treatment led to significant improvement in tasks requiring memory function.



Jacqueline Hebert and Jack Jhamandas shared their promising discoveries with colleagues and the public as part of the Faculty of Medicine & Dentistry's centennial lecture series

"Serendipity plays a big role in science," said Jhamandas. "It was certainly a big part of some of this work."

Hebert, a member of the Division of Physical Medicine and Rehabilitation, leads the amputee program at the Glenrose Hospital. Her research team studies advanced motor control and sensory feedback systems for upper-limb prosthetic devices, a group of projects known as Bionic Limbs for Improved Natural Control.

The challenges Hebert and her team are trying to solve include learning to control the movements of these complex upper-limb

prosthetics, bringing sensation of the hand back to patients and designing better ways to attach the device.

Edmonton is the only centre in Canada providing targeted reinnervation surgeries—procedures that rewire amputated nerve ends into some of the remaining muscle. "You still have the connection from your brain down the nerve that used to power your arm; the arm is gone but the nerves are still there," said Hebert. "The goal is to restore a natural-feeling, thought-controlled muscle contraction that then drives the prosthesis to do what it should."

During surgery, Hebert's team splits the muscles and rewires the nerves to link four or five muscle sites to the prosthetic control. The patient is then able to think about straightening and bending the arm, or opening and closing the hand, and doing these movements at the same time.

Along with better motor control, patients also had restored hand sensation. She adds a major challenge in prosthetic replacement is the patient's inability to feel where the arm is in space and what the hand is touching.

Hebert says the goal for prosthetic limbs is something akin to Luke Skywalker's bionic hand in the *Star Wars* movies—an artificial hand with normal function and sensation. "That's the dream," she said, "but it's no longer an impossible dream."

Prof champions evidence over fear-based gene technology hype

Jamie Hanlon

oncerned about whether your genes could be patented? Worried about being left in the dust by genetically mutated colleagues or classmates? Losing sleep over what your genes may tell you about your susceptibility to sickness? A University of Alberta professor is championing the call for less fear-based hype and more evidence-based policy on the issue of genetics.

As a U.S. Supreme court ruling on gene patenting moves closer amidst moral and ethical concerns about the issue, U of A researcher Timothy Caulfield and his colleagues urge the public not to get their double helixes in a knot over issues that he says have been overblown in the media and by some politicians and special interest groups.



Timothy Caulfield

"If we actually look what the evidence says about those issues, the evidence about harm is much less than the policy-makers would have you believe," said Caulfield, research director with the U of A's Health Law and Science Policy Group.

When evidence exists, at a minimum, policy development should be informed by it."

Timothy Caulfield

The rapid onslaught of new technologies and the role that genetics play in pop culture (in movies such as *Gattaca*, *Blade Runner* and even *Jurassic Park*) feed into the general angst some people feel over science's ever-expanding role in our lives, he says. Issues such as gene patenting or genetic engineering become lightning rods for public concern as a means to direct that fear, as misguided as it may seem to be. Caulfield points out that although much of the fear over genetics is based on speculation

and opinion, scientists have to take some responsibility for the spectre it has become.

"The public has been constantly told by the scientific community that this is powerful information, that genetic information is the language of the gods," he said. "They've bought the message, and because they bought that hyped science message, policy-makers and the general public have concerns about things like genetic discrimination and gene patents as a result of buying the science hype."

Caulfield calls for continued funding of research into the ethical, legal and social issues surrounding genetics. Part of the challenge behind driving public opinion and influencing political will is communicating the research publicly—something Caulfield does often within the media. He says

the debates on gene patents were filled with "reasonable, informed and intelligent speculation" on the potential harm of the concept. But he says the speculation drowned out the evidence-based message that any potential harm is minimal compared with the fear-based hype. It's why he and others want legislators to pay more attention to current research on the subject when developing policy.

"When the evidence exists, at a minimum, policy development should be informed by it," said Caulfield. "Laws about genetic discrimination, our response to concerns over gene patents, how we regulate genetic technologies—whether it's genetic testing or otherwise—all of those policies should be informed by the good research that's been done on those issues and not merely on speculation."

Study revisits Paradise Lost to inform present-day debate on women's reproductive rights

Michael Davies-Venn

Proponents of a women's right to choose may have the support of a 17th-century English poet and his finest masterpiece, say two University of Alberta arts researchers.

English professor Corrinne Harol and graduate student Jessica MacQueen recently released a study contending that John Milton's epic poem *Paradise Lost* rejects the Catholic Church's misogynist justification for pain and suffering, and recasts Eve as an informed consenter when it comes to her own reproductive choice.

For nearly two millennia, the Catholic Church, through the Bible, has taught that because Adam and Eve disobeyed God by eating the forbidden fruit, humankind would know pain and death until a child yet unborn, God's son, redeems humanity. Eve, being the author of the original sin, is

condemned to the particularly harsh penance of having to suffer painful childbirth, a fate the Bible says is the curse that all women carry.

In their study, Eve's Labours: Procreation, Reproduction, and the Politics of Generation in Paradise Lost, Harol and MacQueen argue that Milton removes the blame from Eve's shoulders for the fall of humankind.

"The misogynist idea is that women descend from Eve, and so women suffer because of her original sin," said MacQueen, adding Milton essentially redeems Eve by arguing that a women's suffering in childbirth cannot be considered punishment.

"Pain is not a punishment. It's a choice and the choice to reproduce is what's going to redeem humanity because a woman had to give birth to Christ," says Harol.

After they eat the infamous apple, Adam and Eve debate not having children, but according to Milton, Eve had the last word.



Eve reaches for the forbidden fruit in William Blake's Eve Tempted by the Serpent.

"Eve was told she had to obey Adam, that's part of the curse. But we want to emphasize that they had a debate as to what they should do, and we know that Eve knows how to cultivate or prevent childbirth because of her gardening skills. She was the scientist, and she says, 'Look, we could abstain from sex, but that wouldn't be fun,'" Harol says.

"In the end, their decision to reproduce is based on the promise that one day, future generations will be redeemed by Christ," MacQueen adds.

The pair says their work helps illuminate why discussions on reproductive rights are so political, and why the question of choice was as important in Milton's time as it is

now.

"In some ways, we're arguing that Milton makes the case that a woman's body is hers and she gets to do what she wants with it," Harol says. "But the right choice is to have the baby—not because you're pregnant, it's not an abortion question—but because that's how you participate in culture, that's how you create society. And that's eventually how you give birth to the person who's going to redem humanity. This is the beginning of modern ideas of what we call human agency, grounded in the new scientific ideas of the time." In

news [shorts]

folio presents a sample of some of the stories that recently appeared on the ualberta.ca news page. To read more, go to www.news.ualberta.ca.

Diverting residence waste from landfill

The U of A has joined forces with various on- and off-campus organizations to host Eco Move Out in efforts to divert waste from landfills as thousands of students move out of university residences this spring. Running April 15 to May 3, Eco Move Out provides students the opportunity to donate items for reuse or recycling. In addition to the regular recycling system in place, an extended system will be available allowing students to donate electronics, non-perishable food and toiletries, clothing and household items, and empty personal care containers.

"Many of the things that students plan to get rid of during their move out can be reused or recycled," said Trina Innes, director of the Office of Sustainability. "Through this program, we are not only diverting hundreds of kilograms of waste from the landfill, but also educating students on best practices for donating and recycling their goods.

Facilities and Operations currently diverts 30 per cent of campus waste from landfill and has set a goal to increase this rate to 50 per cent by 2014. Last year the project diverted 6,576 pounds from landfill; organizers hope to increase the diversion rate even more this year.

Ellis and Asselstine named athletes of the year

For the second year in a row, Jaki Ellis, of Pandas volleyball, wa named the winner of the Bakewell Trophy as the University of Alberta's Female Athlete of the Year. The Wilson Challenge Trophy, going to the U of A's Male Athlete of the Year, went to Michael Asselstine of Golden Bears wrestling as the U of A honoured its best student-athletes at the 2012-13 Green and Gold Athletic Awards April 5.

In her fifth and final year, Ellis was selected as the winner after a season that saw her named a CIS championship tournament all-star and a CIS first team all-Canadian. The physical education and recreation student helped the Pandas to a second-straight CIS silver medal finish as well. During Canada West play, Ellis broke the conference record for career aces, finishing with 133 in five seasons, and became the first player in Canada West history to rack up more than 2,000 assists and

Asselstine, an education student, racked up a 27-1 record in CIS matches. He won the Canada West gold medal in his weight class and helped the Bears to their first conference championship in 28 years. He then picked up a silver medal at the CIS championship and the Golden Bears went on to claim the national men's trophy. Asselstine, who is currently competing for Canada at the 2013 Senior Pan-American Wrestling championships in Panama City, also won the CIS Outstanding Student-Athlete and Community Service award this year.

laurels

Ernie Ingles, vice-provost and director of the School of Library and Information Studies, won the 2013 Canadian Library Association/ Ken Haycock Award for Promoting Librarianship. This award honours individuals who contribute significantly to the public recognition and appreciation of librarianship

Mechanical engineering professor **Reinhard Vehring's** work was recognized when Pearl Therapeutics, where he was lead scientist before joining the U of A in 2009, was awarded the Institute for Industrial Research's 2013 Drug Delivery Partnerships Innovation Award. Vehring's innovation improved the reliability of a medical device used to treat respiratory diseases such as asthma and chronic obstructive pulmonary disease, serious conditions that plague millions worldwide. The award recognizes exemplary leadership and scientific and technological innovation in the field of drug delivery and development. Vehring developed a co-suspension formulation platform technology that produces stable delivery of medications through a metered-dose inhaler.

Third-year political science student **Emerson Csorba** received a 3M National Student Fellowship, handed out annually to 10 Canadian students who embrace leadership and a vision of quality education at their post-secondary institution

Geoffrey Rockwell has accepted the position of director of the Kule Institute for Advanced Study. This is a five-year appointment beginning

Kathryn Reid and Joshua Plante, fourth-year students in the Faculty of Pharmacy and Joshua Plante, fourth-year students in the Faculty of Pharmacy and Pharmaceutical Sciences, placed third in the team category for the Health Council of Canada's Health Innovation Challenge. More than 100 post-secondary students from across Canada participated in the challenge to identify innovative practices in Canadian health care and explain how they could be applied in the rest of the country. The U of A duo wrote about the benefits of giving pharmacists the ability to prescribe medication, a policy Alberta adopted in 2007.

New program lets students take Berlin

Michael Davies-Venn

The University of Alberta has launched a new program in Germany that is tailored to students' specific needs, complete with accommodation in one of the world's most exciting cities and a political and cultural powerhouse for all of Europe.

U of A provost Carl Amrhein told the audience at the Canadian Embassy in Berlin, where e3 in Berlin was launched, that the program fuses language and academics with real-life work experience to provide students with a comprehensive opportunity unparalleled by other education-abroad programs

"The e3 program's pairing of theory with practice, and the local with the international, prepares stu-



The e3 in Berlin program fuses language, ics and real-life work experience

dents to meet the creative, risk-taking and critical demands of an increasingly globalized workforce," Amrhein said. "The e3 program model is a unique education abroad experience that

offer participants a wonderful opportunity to couple academic and work experience in a very dynamic part

In a single program, students will be able to receive course credits for U of A German language courses, a work or research internship and an academic course.

Amrhein says the program, which begins in early May, will focus on the cultural, political and social dimensions of public life in Germany. Students will also explore Germany's increasingly important role

Britta Baron, vice-provost and associate vicepresident (international), says the program offers students high quality and a broad variety of options. "This is a truly meaningful and cost-efficient opportunity for students to build a global CV," she says.

"e3 is my brainchild, if I may say so. We know that our students want to have flexibility and customize their academic experience, and at the same time they want to have as many services as possible. So this program draws a circle around their individualized and customized needs," Baron said. "Students don't want to worry about arranging accommodation, finding a language teacher or finding the right courses with acceptable credits. We provide all these at a very reasonable price.

Baron says students have the added benefit of mixing among the three modules—academic course, internship and language course.

"They can mix and match any of those three. The only exception is that they won't be able to do just the internship. They will be able to do either the academic or the language course along with the internship."

Twenty-eight U of A students from various faculties will take advantage of the opportunity this summer in Berlin. Students have been helped to intern with prestigious organizations in Berlin, including the German Research Center for Artificial Intelligence, the new Berlin airport and the East Side Gallery located at the remains of the Berlin Wall. Baron says University of Alberta International's Berlin-based internship liaison, Ira Rückert, will work closely with students to meet their particular internship needs.

Baron says the pilot program has attracted the attention of other Canadian universities. "The vision that we hope to see develop is of a network of e3 hubs worldwide that will help Canadian students to develop an international and intercultural competence, and a better start into a global career.

"This puts education abroad at an elevated level. I want the U of A to be the place in Canada for students to find meaningful opportunities for education abroad," Baron said.

Amrhein announced that programs similar to e3 in Berlin will soon make it to other international destinations, with options being investigated in Brazil and China.

'We plan to offer e3 programs on an annual basis in Berlin." Amrhein said. "Other locations are currently planned for launching as early as the summer

Hoops and high fives





The Faculty of Arts hosted an evening celebration of Aboriginal music and dance April 12 in the PCL Lounge of the Centennial Centre for Interdisciplinary Science.

classified ads

ACCOMMODATIONS FOR RENT

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ACCOMMODATIONS WANTED

SEEKING FURNISHED ACCOMMODATIONS. For French physician and family during sabbatical. Sept 1, 2013 – Aug 31, 2014. Accessible to U of A campus preferred. Contact Vickie Baracos, Dept of Oncology. vickie.baracos@ualberta.ca.

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Exhibit explores Aboriginal students' first-year experience

tattered scrapbook lies on a coffee table in the Rutherford Library Atrium, filled with a whimsical mash-up of written personal reflections, fun popculture postcards and poignant statistics on Aboriginal suicide rates. There's also lots of room to add your own thoughts, and that's just what University of Alberta student Anthony Muller

The "real, raw, everyday" journal created by Muller is one of the provocative pieces featured in Peanut Butter and Drymeat Sandwiches, an eclectic exhibit of visual art, reflective writing, poetry, video and audio work that explores the first-year experience at the U of A through the minds and hearts of

Muller, of Bigstone Cree and Métis background, says he "loves dialogue," which is why he wants people to share their thoughts in his notebook. "It ushers in a greater sense of community," something he feels needs to be strengthened

"It seems to be institutionalized; I hope to add a bit of humanity and break some barriers about Aboriginal people. This invites people into the real world of us."

Muller is one of the students on campus for the first time, launching his academic journey through the U of A's Transition Year Program (TYP). The program introduces Aboriginal students to university and prepares them to go on to chosen studies in any of nine faculties.

The exhibit, which runs until May 15 at Rutherford, caps off a class taught by Keavy Martin and Christine Stewart in the Department of English and Film Studies, called Indigenizing the Academy. The idea is to think more deeply about the role

of indigenous knowledge on campus, said Martin, an assistant professor in English and film studies and an adjunct professor in the Faculty of Native Studies.





Anthony Muller (left) and Krista Chiponski are two of the talented multimedia exhibit exploring Aboriginal students' perspectives.

We are trying to turn the whole idea of education on its head. There is a real diversity from these students; they come from different backgrounds and places. We wanted to rethink the idea of 'transition' as it applies to TYP. Instead of the students having to simply adapt themselves to the U of A, we wanted them to act as agents of decolonization and to embrace the idea that they bring something very important to this place," Martin said.

It would be easy to assume that Aboriginal students new to the university environment "operate on a knowledge deficit," but that would be untrue, Martin added, "I have found my work teaching in TYP to be the most important work I am doing, because it has taught me the most. These students have so much to say—they get me thinking harder than any conference I go to."

Through the exhibit, about 30 students are sharing their perspectives on their first year on campus.

"It is an opportunity to share their ideas about transforming space, to imagine how the university could be different, and to communicate their perspectives on issues that are important to them," Martin said.

Throughout the term, the class discussed the U of A's hopes for its Aboriginal students and the university's commitment to creating space for them in its programs. "There is lots of that happening on campus, so in some cases students offer suggestions for how those promises could be improved and better fulfilled," Martin noted.

TYP student Krista Chiponski took that idea to heart, walking the campus to evaluate five main buildings for indigenous content. She found a sundial medicine wheel on the floor of the Centennial Centre for Interdisciplinary Science, murals in the Rutherford Library and displays in Pembina Hall (home to the Faculty of Native Studies), but feels there is room for more.

"HUB has the shape of a longhouse and an assortment of food outlets; why not offer bannock? Or maybe a plaque for some of the buildings, paying homage to the treaty land that the university is on.'

Chiponski, who is Métis, felt empowered by the class project. "We want to make a difference on campus and to let other students know we want to share our culture and be a part of the university. For me it has opened a lot of doors and given me a community to look to."

Martin and her students hope that viewers come away from the exhibit with "a greater awareness of the experience indigenous students have on campus—not only how diverse but also how challenging it can be. They hope that people remember the territory they are in, and that part of their work here is to have a relationship with indigenous people."

Cultural studies department celebrates some of its best

Michael Davies-Venn

√he Department of Modern Languages and Cultural Studies recognized some of its best scholars and former students April 3 at a book launch showcasing the University of Alberta's research excellence in Ukrainian literature, language and folklore.

"MLCS scholars have published important publications that marked historical milestones in each of these three disciplines," said Lois Harder, associate dean of research and graduate studies in the Faculty of Arts. "Our celebration is particularly important because it acknowledges the intimate relationship between teaching and the formation of future scholars."

One of those scholars, Svitlana Kukharenko, co-edited The Paths of Folklore: Essays in Honor of Natalie Kononenko, one

of two books launched during the event. Kukharenko says the book, which features essays by Kononenko's former students and colleagues, is a sign of gratitude.

"She's a fountain of ideas and a strong motivator. I learned a lot from her during my PhD studies, especially on her approach to

Kononenko, professor of folklore, travelled extensively in remote areas in Ukraine and record conversations on rituals performed during childbirths, weddings and funerals. She then created the Ukrainian Folklore Sound Recordings, a compilation of 170 hours of recordings from her research.

The fruits of extensive research are also evident in Mykola Soroka's Faces of Displacement: The Writings of Volodymyr Vynnychenko, a study of the expatriate Ukrainian writer and politician. Soroka, who completed the work as part of his PhD studies, says it helps address a common problem among literary scholars who tend to portray writers such as Vynnychenko only as exiles

"My study shows that Vynnychenko combined many features of displacement," said Soroko. "For example, at the beginning of his career he was more like an émigré, but at the same time he adjusted a bit to the host countries he visited. He experienced not only the predicament of immigration but also benefit from his expatriation."

Soroka notes that the book is not particular to Ukraine and can serve as structured framework to study any displaced writer.

MLCS professor Oleh Ilnytzkyj, who supervised Soroka during his PhD studies along with colleagues Natalia Pylypiuk and



Paul Hjartarson, says the work brings honour to the university and Ukrainian culture.

"As I fondly look back at Mykola's tenure in the program, I can't help but wonder if he

talks & events

Talks & Events listings do not accept submissions via fax, mail, email or phone. Please enter events you'd like to appear in folio and at www.news.ualberta.ca/events. A more comprehensive list of events is available online at www.events.ualberta.ca. Deadline: noon one week prior to publication. Entries will be edited for style and length

UNTIL JUNE 29

U of A Museums present SIZE MATTERS: Big Prints From Around the World. From miniature to monolithic, artists have been playing with scale for thousands of years. SIZE MATTERS features the work of contemporary printmakers—working in media as diverse as woodcuts and digital prints on fabric—from Canada, the United States, Finland, Japan and beyond, who all have one thing in common: they like to think big. Enterprise Square.

UNTIL MAY 31

Miriam Green Ellis, Champion of the West. This exhibition introduces the work of pioneer woman jour-nalist of Western Canada, Miriam Green Ellis (1879-1964). Through a sampling of the rich diversity of the collection of published newspaper articles, photographs, coloured glass slides, manuscripts, diaries

and letters she bequeathed to the University of Alberta, the exhibition invites you to see the way we were as Westerners almost a century ago. Bruce Peel Special Collections Library, Rutherford South.

UNTIL MAY 1

Call for Nominations: University Cup and Vargo Teaching Chair The Office of the Provost and Vice-President (Academic) invites nominations for the University Cup and Vargo Teaching Chair. Detailed criteria for the University Cup can be found at policiesonline.ualberta.ca. Nominations Teaching Chair are due by 4 p.m. on May 1, in the Academic Awards and Ceremonies Office, 1-27 SAB. For more information contact Laura Connell, Academic Awards and Ceremonies Office, 780-492-2644; email: laura.conell@ualberta.ca

APRIL 25 & 27

Staging Diversity 2013 Artist-in-Residence Workshop Series. Artist-in-residence for Winter 2013 and MFA candidate Nikki Shaffeeullah is a theatre facilitator who has led arts-based community projects across Canada and internationally. Staging Diversity, a participatory, theatre-based research project, employs a variety of theatre-based methodologies to explore social location, with a focus on ancestral histories and crosscultural myths, folk tales and legends. 4-104 Education North.

APRIL 22

Campus Sustainability Leadership Awards. The Awards formally recognize the contributions of those helping the U of A meet its sustainability goals. Students, faculty, staff and groups (teams, departments, work units and student organizations) who model social, environmental and economic

responsibility in how they work, live and play are eligible. For more information, visit sustainability.ualberta.ca/awards

APRIL 28

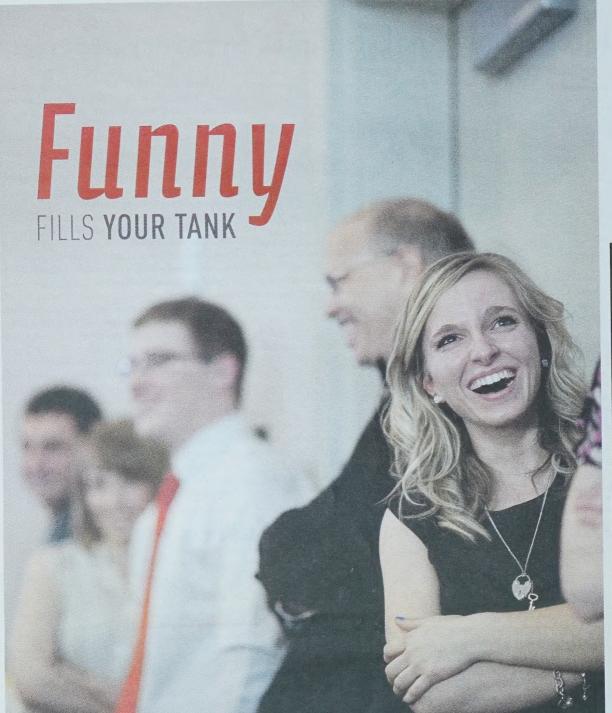
Scenes From Childhood. The Augustana Choir will playfully explore the theme of children and childhood through choral repertoire based on children's poetry and texts written about or for children. Special guests include the Cantilon Children's Choir and children from the Augustana Conservatory. Music written by young or emergent composers will be featured. Tickets (available only at the door): \$18 for adults, \$14 for students/ seniors and \$45 for family. 7–8:45 p.m. Augustana Chapel, Camrose.

MAY 2

Lecture With Daily Planet Host Dan Riskin. Join Dan Riskin, U of A alum and host of the Discovery Channel's Daily Planet, as he talks about where

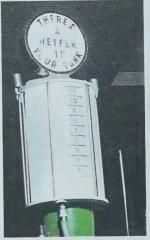
your education can take you in his talk entitled Vampire bats, leeches, and celebrities: Oh, the dirty consequences of a degree from the U of A. Free for students, \$5 for everyone else. 7-9:30 p.m. 1-430 CCIS.

Object Lessons: Exploration in Culture, Practice and Material Forms. Explore the rich world of material culture studies in a day of thematic workshops directed at the close study of objects and material lives. Participants choose from three of six workshops to attend over the course of the day, with lunch and coffee breaks between. Each workshop holds up to 16 participants. Workshops are scheduled twice during the day. Workshop spaces are limited and registration is on a first-come, first-served basis. www.materialculture. ualberta.ca. 8:30–4:30 p.m. Human Ecology Building.



BackPage











PHOTOGRAPHY

JOHN ULAN



Hilarity ensued April 5 as an audience of about 400 at the Edmonton Expo Centre was treated to videos, skits and songs about all things agricultural. The annual *There's a Heifer in Your Tank* variety show is the culmination of the major project in Animal Science 200, the agriculture cornerstone course. Students are tasked with developing creative ways to answer questions about agriculture. Some of this year's quirky queries: Can sheep tear away their birthday suit? Aporkalypse—Is bacon going bye-bye? Are people who drink raw milk out to pasture? Is healthy beef a needle away?